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cation was made. In his letter to Mr. Nicolay, Dr. Fényes states that he has the species from various parts of the United States, being apparently an importation from the Palearctic region. Col. Casey seems to take nearly the same view in Trans. Ac. Sci. St. Louis, XVI, p. 231, but, as he mentioned only a single specimen from Mt. Airy, Pa., saying that it was by no means certain that it had established itself, it may be well to publish this additional record.—C. W. LENG.

An Appreciation of the Weevil Book.—A copy of Blatchley and Leng's weevil book came duly to hand, and I have tested it pretty thoroughly in verifying and working over a large material in the families treated that occur east of the Mississippi river. The tables and descriptions are concise and practicable, and work out nicely. One of the best tests of such a work is the ease and accuracy with which one can use it in the identification of species. In this respect the authors have succeeded well. The illustrations are good and very useful. The presswork is clean and perfect. Messrs. Blatchley and Leng are entitled to the thanks of all entomologists for this excellent book which will undoubtedly prove very useful to students, and is a work they can not afford to be without.—CHARLES DURY.

BOOK NOTICE.

Rhynchophora or weevils of North Eastern America. By W. S. BLATCHLEY AND C. W. LENG. Indianapolis, the Nature Publishing Co., 1916. 682 p. illus. 22.5 cm.

Probably at once the most useful and most used volume for the student of our North American beetles during the past several years, has been Mr. Blatchley's *Coleoptera of Indiana*. It is the sort of a handbook that is exactly what one wants, and that cannot be used without a sense of thankfulness for its merits and even for its mere existence,—I might almost add without becoming a beetle enthusiast. The weevils, which have been rather dreaded by the tyro as a peculiarly difficult group, were not included. It may be imagined then with what pleasure we learned that Mr. Blatchley and Mr. Leng had jointly under way the preparation of a companion volume for the weevils not merely of Indiana, but of the entire eastern half of North America. Now that it has appeared, our anticipation culminates in the keenest satisfaction. It is in style and treatment

similar to the Coleoptera of Indiana, but the inclusion of all of our eastern species (despite the more modest pretense of its title) and the rather full statements of distribution enormously increase its usefulness, and elevate it at once to the front rank of American entomological text-books.

The aim of the work has been, in the words of the author "To furnish students and tyros in entomology a simple manual which would enable them in the most direct way possible to arrange, classify, and determine the scientific names of the weevils in their collections." Therefore undue technicality has been avoided. Two factors that contribute much toward the attainment of the aims of the work, as thus set forth, are the keys and the illustrations. The latter are numerous, uniformly excellent, and in a considerable measure original. The former are lucid and give evidence of much care and discrimination and of the same appreciation of the viewpoint of the novice that characterizes the keys in the "Coleoptera of Indiana," and makes them easily useable. The senior author is responsible for the keys and descriptions, except in the Scolytidæ and the genus *Balaninus*, which were prepared entirely by Mr. Leng.

The introduction contains an interesting summary of the structure and structural variations within the Rhynchophora. Particularly interesting is the discussion of the antennæ. These organs show a progressive modification which has been used as the chief basis for the interpretation of the phylogenetic relations of the major groups and assignment to their respective positions. The most primitive form is found in the Brenthidæ, in which they are straight, without a club, and the segments subequal. In the Rhinomacerinæ and Anthribidæ the last three segments are widened and form a weak club, but retain their relative lengths. In the Apioninæ, Allocorhyninæ and Tachygoninæ (Curculionidæ), the last three segments are modified into a club, but are distinctly separated by sutures, the three being of equal length, or the last one elongate. In the great bulk of more highly specialized Rhynchophora we find a development in a different direction. "The first joint becomes more or less elongate, . . . and beyond it the antenna is suddenly bent, elbowed or 'geniculate' . . . concurrently we find the development of grooves to receive the antennæ. . . . The club is usually compact, formed of three approximately equal joints separated by sutures; the whole

antenna is usually pubescent and highly sensitive; the funicle . . . is composed of seven, rarely fewer joints. The next and final step in antennal development is manifested in various directions, either as unusual forms or scape, or by reduction in the number of funicular joints, by loss of pubescence on parts of the antenna, or by enlargements or unusual forms of the club. Important among these final developments is the enlargement of the first joint of the club instead of being approximately equal to the other two. . . ." By this last character the authors would prefer to recognize the Calandridæ of Leconte and Horn as a distinct family, but out of deference to the opinion of others, refrain from doing so. Finally, in the Scolytidæ "developments begun in Calandrinæ are continued and variations multiplied. In one group the scape becomes sexually clothed with long hair, in another the funicle is reduced to a single joint; the sutures of the club are often obsolete, and its surface becomes in part corneous, while the form of the club often varies, at times assuming grotesque proportions."

For more than a generation the beginner has been deterred from the study of Rhynchophora by the difficulty attached to the family keys published by Leconte and Horn. Not only must both sexes be at hand in order to use those keys, but the under surface of the elytra must be examined for an "inner fold," and as to whether this fold, if present, is "feeble" or "strong" in the opinion of the authors. Hayward's Classification of the families of Coleoptera, published in 1909 (but prepared prior to his death in 1906) merely repeats Leconte and Horn's key, with the addition of the Brentidæ which was accidentally omitted by those authors. Probably in no single respect is the present volume more satisfactory than in substituting for this old key to the families, an entirely new one which can be readily applied by anybody.

W. D. Pierce, who has been the most prolific writer on North American Rhynchophora in recent years, stated in 1909 that the most recent writers on the Rhynchophora seem to agree in the main in considering only four families—Curculionidæ, Anthribidæ, Brentidæ and Ipidæ (Scolytidæ). Pierce "for the time being" adopted that arrangement, and it has been followed, with commendable judgment by Blatchley and Leng. More recently Pierce has drifted toward a much more radical classification, and in this has been

supported, so far as the Scolytidæ are concerned, by A. D. Hopkins. It is worth while to compare the classification elaborated by Pierce in a very recent paper,¹ with that adopted by Blatchley and Leng (which is the old system of Lacordaire) and also with that of Leconte and Horn. In doing this I do not mean to intimate that the former would have been more satisfactory for the text under consideration. Indeed, although in my ignorance of the group not fairly entitled to an opinion, my personal predilections are strongly for the more conservative classification.

If Pierce (1916) is correct the maxillary palpi of Brentidæ are flexible, a fact evidently unknown to Blatchley and Leng, as also to Leconte and Horn. If true this character will support the primitive position to which they have assigned that family. They have shown that the so-called flexible palpi of Anthribidæ and Rhinomacerinæ, while less rigid than in other Rhynchophora, still preserve the general character of the palpi observed throughout the suborder.

In a text book of this kind, it is particularly important to be conservative (as the authors have been) in discarding established names, but it would also seem desirable to introduce parenthetically or as alternative names those which will probably come to be used in the future, or are by some authors used at present as the correct group names. Such a course would not increase the beginners' difficulties, but would simplify them, for they would greatly help him in correlating the special literature of the subject with his manual. A study of the type genera of the groups would doubtless have enabled the authors to foreshadow the several changes that Pierce has since shown to be necessary, such as the correction of the universal misspelling of Brentidæ, Doydirhynchinæ for Rhinomacerinæ, etc. These are however very minor points, and were the reviewer desirous of mentioning only defects, this review would have to be exceedingly brief for lack of material to write about.—J. Chester Bradley.

¹ Studies of weevils (Rhynchophora) with descriptions of new genera and species. By W. Dwight Pierce. Proceedings of the United States National Museum. 1916. 51: 461-473.

Pierce (1916) and Hopkins (1915)¹

Blatchley and Leng (1916)

LeConte & Horn, 1883.¹

Series **Phytophaga**

Subseries 2. **Rhynchophora**

Superfamily 4. **AGLYCYDEROIDEA**²

Family *Aglycyderidae*

Family *Protorhinidae*

Superfamily 5. BRENTOIDEA..... Family BRENTHIDÆ..... Family 80. BRENTHIDÆ
Family BRENTIDÆ..... Subfamily Brenthidæ
[= BRENTHIDÆ]..... Subfamily Cyladinæ

Superfamily 7. PLATYSTOMOIDEA..... Family ANTHRIBIDÆ..... Family 83. ANTHRIBIDÆ
Family *Bruchelidæ*
Family PLATYSTOMIDÆ
[= ANTHRIBIDÆ]
Family CHORAGIDÆ

Family CURCULIONIDÆ

Superfamily 8. DOYDIRHYNCHOIDEA..... Subfamily Rhinomacerinæ..... Family 74. RHINOMACERIDÆ
Family DOYDIRHYNCHIDÆ
[= RHINOMACERIDÆ]

Superfamily 9. ATTELABOIDEA.....
Family b. ATTELABIDÆ..... { Subfamily Rhynchitinae..... Family 76. ATTELABIDÆ
Subfamily Attelabinae..... Family 75. RHYNCHITIDÆ
Family d. PTEROCOLIDÆ..... Subfamily Pterocolinae..... Subfamily Rhynchitinae
Family a. APIONIDÆ..... Subfamily Apioninae..... Family 79. CURCULIONIDÆ
Subfamily Allocorhyninae..... Subfamily 4. Apioninae
Subfamily Ithycerinae..... Subfamily 3. Ithycerinae
Family c. TACHYGONIDÆ..... Subfamily Tachygoninae.....

Superfamily 10. **BRACHYCEROIDEA**

Family *Brachyceridae*

Family *Microceridae*

Superfamily 6. CURCULIONIDÆ.....
Family a. PSALLIDIIDÆ..... Subfamily Otiiorhynchinae..... Family 78. OTIORHYNCHIDÆ
[= BRACHYRHINIDÆ]
[= OTIORHYNCHIDÆ]
Family b. *Psalliduridae*
Family c. *Plinthidae*
Family d. HYPERIDÆ
Family e. CURCULIONIDÆ } Subfamily Curculioninae.....
Family f. *Orobitidae*
Family g. CRYPTORHYNCHIDÆ }

Subfamily Thecesterninae..... Family 77. BYRSOPIDÆ³

Family i. COSSONIDÆ..... Subfamily Cossoninae..... Family 81. CALANDRIDÆ

Family h. RHYNCHOPHORIDÆ..... Subfamily Calandrinae..... Subfamily Cossoninae

[= CALANDRIDÆ]..... Subfamily Rhininae

Subseries **Phytophaga**

Superfamily 1. SCOLYTOIDEA..... Family SCOLYTIDÆ..... Family 82. SCOLYTIDÆ

Family d. PLATYPODIDÆ..... Subfamily Platypodinae..... Subfamily Platypodinae

Family c. *Scolytoplatypodidae*

Family b. SCOLYTIDÆ..... Subfamily Scolytinae } Subfamily Scolytinae

Family a. IPIDÆ..... Subfamily Ipinæ }

Superfamily 2. MYLABROIDEA

Family MYLABRIDÆ [= BRUCHIDÆ]

Superfamily 3. CERAMBYCOIDEA } Suborder **COLEOPTERA** (genuina)..... Suborder **COLEOPTERA** (genuina)

Superfamily CHRYSOMELOIDEA } (in part) (in part)

¹ The order of arrangement of the groups in the first and third columns of this table is modified to correspond as closely as possible with that of Blatchley and Leng, but the original order is indicated by the numbering or lettering of the groups, wherever they have been changed.

² Groups not occurring in eastern North America are italicized.

³ The family Byrsopidae of LeConte and Horn has been wholly dissolved by Blatchley and Leng.